

REMARKS/ARGUMENTS

This communication is in response to the Advisory Action dated November 14, 2008 and the Final Office Action dated September 2, 2008. Claims 2, 4-9 and 11 have been previously canceled, without prejudice. Claims 1, 3, 10 and 12 remaining pending in this application, with claims 1 and 12 being the only independent claims. Reconsideration in view of the arguments presented below is respectfully requested.

Claim Rejections under 35 U.S.C. 112, 1st paragraph

Claims 1, 10 and 12 are rejected as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Specifically, the Examiner asserts that claims 1 and 12, as amended, recites "(a) storing training input data", while claim 10 similarly recites a "computer digital storage medium." The Examiner asserts that no "computer digital storage medium" or any other computer hardware for data storage is disclosed in the specification.

Applicant respectfully traverses the Examiner's rejections. Claims 1 and 12, as originally filed, call for "storing training input data records." Paragraph [0051] of the specification, has been amended to read "In step 100, an input data record for which a prediction is to be created is input. This input data record for the neural network determines a point x. The input data records are stored as training input data records that form the convex envelope." (emphasis added) Support for this amendment to the specification is found in claims 1 and 12, as originally filed.

Claim 10, as originally filed, calls for "A computer digital storage medium program product." Support for this limitation is found in claim 10 itself, as originally filed, which contains this language as well as in paragraph [0010] of the specification, as originally filed, which states "In addition, the invention is based on the object of providing a corresponding computer program product." (emphasis added) Additional support is provided in paragraph [0001] which states "The invention relates to a method for checking whether an input data record is in the permitted working range of a neural network, and to a corresponding computer program product and system." (emphasis added)

Accordingly, proper support is found in the specification for the claims limitations and withdrawal of these rejections with respect to claims 1, 10 and 12 under 35 U.S.C. §112, 1st paragraph is requested.

Claim Rejection under 35 USC §101

In the outstanding Office Action the Examiner rejects claims 1, 3, 10 and 12 under 35 U.S.C. §101 on the grounds that these claims comprise a mathematical algorithm and thus are non-statutory subject matter. Applicants respectfully disagree and assert that claims 1, 3 and 10 are patent-eligible subject matter under 35 U.S.C. §101.

As acknowledged by the Examiner in the November 14, 2008 Advisory Action, the proper inquiry or test for determining statutory subject matter as espoused by the Federal Circuit in the recent decision *In re Bilski*, Fed. Cir. 2007-1130, is the machine-or-transformation test. "The machine-or-transformation test is a two-branched inquiry; an applicant may show that a process claim satisfies §101 either by showing that his claim is tied to a particular machine, or by showing that his claim transforms an article." *In re Bilski*, at 24 (emphasis added).

In the November 14, 2008 Advisory Action the Examiner maintains that a neural network is not a machine and instead states "neural networks are mathematical models which abstract the mechanics of information processing in the brain." Applicants respectfully disagree with such a narrow definition and maintain that one of ordinary skill would recognize that the definition of the term "neural network" refers to a computing system or architecture including processors that imitate neurons in the human brain and is therefore a machine. Definition of the term "neural network" is provided by the following exemplary websites:

- http://en.wiktionary.org/wiki/neural_network

"neural network (plural neural networks): A real or virtual computer system designed to emulate the brain in its ability to 'learn' to assess imprecise data."

- <http://wordnet.princeton.edu/perl/webwn?s=neural%20network>

"neural network, neural net: computer architecture in which processors are connected in a manner suggestive of connections between neurons; can learn by trial and error."

- http://dereng.com/tlas_glossary.htm

"Neural Network: A neural network is a computer network designed to function in a similar way to natural neural structures such as a human brain."

- <http://www.cs.stir.ac.uk/~lss/NNIntro/InvSlides.html>
 >What is a neural network?

"Neural networks are a form of multiprocessor computer system, with

- simple processing elements
- a high degree of interconnection
- simple scalar messages
- adaptive interaction between elements"

Accordingly, Applicants submit that conventional definition known to one of skill in the art of the term "neural network" as found in independent claims 1 and 12 is directed to a machine (e.g., a computer network including processors) thereby satisfying the machine prong of the two-part inquiry.

Applicants also submit that the second branch of the test is met by the process claims of the present application. The *Bilski* decision identified some illustrative examples establishing processes in which a transformation or reduction of an article into a different state or thing constituted patent-eligible subject matter. A claim involving the transformation of data to constitute patent-eligible subject matter should "specify any particular type of data or nature of data; or specify how or from where the data was obtained or what the data represented." *In re Bilski*, at 25. The process claims of the present application specify a particular type of data or nature of data. Specifically, the process claims expressly specify the particular type of data or nature of the data being transformed as "an input data record being manufacturing process data selected from the group comprising data related to the materials used, composition data, parameters of the production system, pressure data and/or temperature data."

The Examiner in the November 14, 2008 Advisory Action agrees that the claims specify a particular type of data. Nevertheless, the Examiner maintains that there is "no support that the

invention is directed toward the transformation of that data into some tangible result.”

Applicants respectfully disagree and submit that the step of “disregarding the input data record if it is outside the working range of the used neural network and processing the input data record by the used neural network if it is inside the working range” is the transformation or reduction of an article (e.g., the particular type of data) into a different state or thing (e.g., a set of data different from the original set. That is, the data (e.g., article or subject matter) is transformed in that it does not include (e.g., disregards) input data records that are outside the working range of the used neural network. The *In re Bilski* court referred to the previous Federal Circuit decision *In re Abele*, which recognized that X-ray attenuation data clearly represented physical and tangible objects. (Id. at 26.) Furthermore, the Court in reviewing the *Abele* decision also concluded that “the transformation of that raw data into a particular visual depiction of a physical object on a display was sufficient to render that more narrowly-claimed process patent-eligible.” (Id. at 26.) “We further note for clarity that the electronic transformation of the data itself into a visual depiction in *Abele* was sufficient; the claim was not required to involve any transformation of the underlying physical object that the data represented.” (Id. at 26.) (emphasis added) Applying these principles to the present claimed invention the claims need not transform the underlying physical object that the data represents, instead the mere electronic transformation of the data itself by disregarding certain input data records based on specified criteria or conditions itself is enough to satisfy this prong of the two part inquiry.

Having established that both branches of the machine-or-transformation test have been met, Applicants submit that the present claimed method constitutes patent-eligible statutory subject matter and requests that the rejection under 35 U.S.C. §101 be withdrawn.

Claim Rejection under 35USC § 112, 1st paragraph

The Examiner rejected claims 1, 3, 10 and 12 as being rejected under 35 U.S.C. §112, first paragraph, on the grounds that these claims fail to satisfy the requirements under 35 U.S.C. §101 and thus as a matter of law fail to enable one of ordinary skill in the art to use the invention under 35 U.S.C. §112. In view of the arguments traversing the rejection under 35 U.S.C. §101, Applicants submit that these rejections are also overcome.

Allowable Subject Matter

The prior art claim rejections have been withdrawn. Accordingly, Applicants submit that claims 1, 3, 10 and 12 are now allowable over the prior art of record.

CONDITIONAL PETITION FOR EXTENSION OF TIME

If entry and consideration of the amendments above requires an extension of time, Applicants respectfully request that this be considered a petition thereof. The Assistant Commissioner is authorized to charge any fee(s) due in this connection to Deposit Account No. 14-1263.

ADDITIONAL FEE

Please charge any insufficiency of fees, or credit any excess, to Deposit Account No. 14-1263.

Respectfully submitted,
NORRIS McLAUGHLIN & MARCUS, P.A.

By Christa Hildebrand
Christa Hildebrand
Reg. No. 34,953
875 Third Avenue - 18th Floor
New York, New York 10022
Phone: (212) 808-0700
Fax: (212) 808-0844
Facsimile: (212)808-0844

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